

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method, comprising:
disposing a precursor solution onto a surface of a layer to form a precursor film, the precursor film including a carboxylate salt of a rare earth metal, a fluorinated carboxylate salt of an alkaline earth metal and a non-halogenated carboxylate salt of a transition metal, ~~with the proviso that the carboxylate salt of the transition metal salt is not a trifluoroacetate salt of the transition metal;~~ and
treating the precursor film to form an intermediate of a rare earth metal-alkaline earth metal-transition metal oxide.
2. (Original) The method of claim 1, wherein the precursor film is treated for less than about five hours.
3. (Original) The method of claim 1, the precursor solution further comprises a Lewis base.
4. (Original) The method of claim 3, wherein the Lewis base comprises a nitrogen-containing compound.
5. (Original) The method of claim 4, wherein the nitrogen-containing compound is selected from the group consisting of ammonia and amines.

6. (Currently Amended) The method of claim 1, wherein ~~the layer of~~ the intermediate has a thickness of at least about one micrometer.

7. (Currently Amended) The method of claim 1, further comprising treating ~~the layer of~~ the intermediate to form a layer of a rare earth metal-alkaline earth metal-transition metal oxide having a critical current density of at least about 0.5×10^6 Amperes per square centimeter.

8. (Currently Amended) The method of claim 1, wherein defects contained within ~~the layer of~~ the intermediate comprise less than about 20 percent of any volume element of the intermediate defined by a projection of one square centimeter of a surface of the intermediate.

9. (Original) The method of claim 1, wherein the carboxylate salt of the transition metal comprises $\text{Cu}(\text{O}_2\text{CC}_2\text{H}_5)_2$.

10. (Original) The method of claim 9, wherein the alkaline earth metal salt comprises barium trifluoroacetate.

11. (Original) The method of claim 10, wherein the rare earth metal salt comprises a salt selected from the group consisting of halogenated yttrium carboxylates and nonhalogenated yttrium carboxylates.

12. (Canceled)

13. (Currently Amended) The method of claim ~~12~~ 1, wherein the alkaline earth metal salt comprises barium trifluoroacetate.

14. (Original) The method of claim 13, wherein the rare earth metal salt comprises a salt selected from the group consisting of halogenated yttrium acetates and nonhalogenated yttrium acetates.

15. (Currently Amended) A method, comprising:
disposing a precursor solution onto a surface of a layer to form a precursor film, the precursor film including a carboxylate salt of a rare earth metal, a fluorinated carboxylate salt of an alkaline earth metal and a non-halogenated carboxylate salt of copper; and
treating the precursor film to form an intermediate of a rare earth metal-alkaline earth metal-transition metal oxide.
16. (Original) The method of claim 15, wherein the precursor film is treated for less than about five hours.
17. (Original) The method of claim 15, wherein the precursor solution further comprises a Lewis base.
18. (Original) The method of claim 17, wherein the Lewis base comprises a nitrogen-containing compound.
19. (Original) The method of claim 18, wherein the nitrogen-containing compound is selected from the group consisting of ammonia and amines.
20. (Currently Amended) The method of claim 15, wherein ~~the layer of~~ the intermediate has a thickness of at least about two micrometers.
21. (Currently Amended) The method of claim 15, wherein ~~the layer of~~ the intermediate has a thickness of at least about three micrometers.
22. (Currently Amended) The method of claim 15, wherein ~~the layer of~~ the intermediate has a thickness of at least about four micrometers.

23. (Currently Amended) The method of claim 15, wherein ~~the layer of the~~ intermediate has a thickness of at least about five micrometers.

24. (Currently Amended) The method of claim 15, further comprising treating ~~the layer of the~~ intermediate to form a layer of a rare earth metal-alkaline earth metal-transition metal oxide material having a critical current density of at least about 0.5×10^6 Amperes per square centimeter.

25. (Currently Amended) The method of claim 15, wherein defects contained within ~~the layer of the~~ intermediate comprise less than about 20 percent of any volume element of the intermediate defined by a projection of one square centimeter of a surface of the intermediate.

26. (Canceled)

27. (Canceled)

28. (Currently Amended) The method of claim ~~27~~ 15, wherein the rare earth metal salt comprises a salt selected from the group consisting of halogenated yttrium acetates and nonhalogenated yttrium acetates.

29. (Canceled)

30. (Currently Amended) The method of claim ~~29~~ 15, wherein the alkaline earth metal salt comprises barium trifluoroacetate.

31. (Original) The method of claim 30, wherein the rare earth metal salt comprises a salt selected from the group consisting of halogenated yttrium acetates and nonhalogenated yttrium acetates.

32-50. (Cancelled).

51. (Currently Amended) A method, comprising:
disposing a precursor solution onto a surface of a layer to form a precursor film, the precursor film including a carboxylate salt of a rare earth metal, a fluorinated carboxylate salt of an alkaline earth metal, a non-halogenated carboxylate salt of a transition metal, and a Lewis base; and
treating the precursor film to form an intermediate of a rare earth metal-alkaline earth metal-transition metal oxide.

52. (Original) The method of claim 51, wherein the Lewis base comprises a nitrogen-containing compound.

53. (Original) The method of claim 52, wherein the nitrogen-containing compound is selected from the group consisting of ammonia and amines.

54. (Currently Amended) The method of claim 52, wherein the nitrogen-containing compound ~~comprises an amine having a formula~~ is selected from the group consisting of CH_3CN , $\text{C}_5\text{H}_5\text{N}$ and $\text{R}_1\text{R}_2\text{R}_3\text{N}$, wherein each of R_1 , R_2 and R_3 are independently selected from the group consisting of H, a straight chained alkyl group, a branched alkyl group, an aliphatic alkyl group, a non-aliphatic alkyl group and a substituted alkyl group.

55. (Currently Amended) The method of claim 51, wherein ~~the layer of the~~ intermediate has a surface adjacent the surface of the first layer and ~~the layer of the~~ intermediate has a plurality of volume elements, and wherein defects contained within the intermediate comprise less than about 20 percent of any volume element of the intermediate defined by a projection of one square centimeter of the surface of the intermediate, and the intermediate is free of any defect having a maximum dimension greater than about 200 micrometers.

56. (Original) The method of claim 51, wherein the precursor film is treated for less than about five hours.

57. (Currently Amended) The method of claim 51, wherein ~~the layer of the~~ intermediate has a surface adjacent the surface of the ~~first layer and the layer of the~~ intermediate has a plurality of volume elements, and wherein defects contained within the intermediate comprise less than about 10 percent of any volume element of the intermediate defined by a projection of one square centimeter of the surface of the intermediate, and the intermediate is free of any defect having a maximum dimension greater than about 200 micrometers.

58. (Original) The method of claim 51, wherein the intermediate is capable of being processed to provide a superconductor material having a critical current density of at least about 0.5×10^6 Amperes per square centimeter.

59-65. (Cancelled).

66. (Currently Amended) The method of claim 1, wherein ~~the layer of the~~ intermediate has a surface adjacent the surface of the ~~first layer and the layer of the~~ intermediate has a plurality of volume elements, and wherein defects contained within the intermediate comprise less than about 20 percent of any volume element of the intermediate defined by a projection of one square centimeter of the surface of the intermediate, and the intermediate is free of any defect having a maximum dimension greater than about 200 micrometers.

67. (Currently Amended) The method of claim 15, wherein ~~the layer of the~~ intermediate has a surface adjacent the surface of the ~~first layer and the layer of the~~ intermediate has a plurality of volume elements, and wherein defects contained within the intermediate comprise less than about 20 percent of any volume element of the intermediate defined by a projection of one square centimeter of the surface of the intermediate, and the intermediate is free of any defect having a maximum dimension greater than about 200 micrometers.

68. (Original) The method of claim 67, wherein the intermediate is capable of being processed to form a superconductor material having a critical current density of at least about 0.5×10^6 Amperes per square centimeter.

69. (Currently Amended) A method, comprising:
disposing a precursor solution onto a surface of a layer to form a precursor film, the precursor film including a carboxylate salt of a rare earth metal, a fluorinated carboxylate salt of an alkaline earth metal, a non-halogenated carboxylate salt of a transition metal; and
treating the precursor film to form a superconductor material having a critical current of at least about 200 Amperes per centimeter of width.

70. (Original) The method of claim 69, wherein the superconductor material has a critical current of at least about 300 Amperes per centimeter of width.

71. (Currently Amended) The method of claim 69, wherein the superconductor material has a critical current of at least about ~~300~~ 500 Amperes per centimeter of width.

72. (Original) The method of claim 69, wherein the precursor solution comprises a salt of a rare earth metal, a salt of an alkaline earth metal and a salt of a transition metal.

73. (Original) The method of claim 72, wherein the rare earth metal is yttrium, the alkaline earth metal is barium, and the transition metal is copper.

74. (Original) The method of claim 69, wherein the superconductor material comprises a rare earth metal-alkaline earth metal-transition metal oxide.

75. (Original) The method of claim 69, wherein the superconductor material comprises YBCO.

76. (Original) The method claim 69, wherein the method includes forming an intermediate of the superconductor material.

77. (Original) The method of claim 76, wherein the intermediate is metal oxyfluoride intermediate.

78. (Currently Amended) The method of claim 1, wherein the intermediate of the rare earth metal-alkaline earth metal-transition metal oxide is further treated to form a superconductor material ~~has~~ having a critical current of at least about 200 Amperes per centimeter width.

79. (Currently Amended) The method of claim 15, wherein the intermediate of the rare earth metal-alkaline earth metal-transition metal oxide is further treated to form a superconductor material ~~has~~ having a critical current of at least about 200 Amperes per centimeter width.

80. (Canceled)

81. (Currently Amended) The method of claim 51, wherein the intermediate of the rare earth metal-alkaline earth metal-transition metal oxide is further treated to form a superconductor material ~~has~~ having a critical current of at least about 200 Amperes per centimeter width.

82. (Original) The method of claim 1, wherein the carboxylate salt of the transition metal comprises a propionate salt of the transition metal.

83. (Currently Amended) The method of claim 15, wherein the carboxylate salt of the ~~transition metal~~ copper comprises a propionate salt of the ~~transition metal~~ copper.

84-85. (Cancelled)

86. (Original) The method of claim 51, wherein the salt of the transition metal comprises a carboxylate salt of the transition metal.

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87-88. (Cancelled).